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TRANSLATION AND VALIDATION OF THE AMSTERDAM PREOPERATIVE ANXIETY AND INFORMATION SCALE (APAIS) INTO HAUSA LANGUAGE

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Abstract

Objectives: The objectives of this study ware to translate and validate the Amsterdam Preoperative Anxiety and Information Scale into Nigerian Hausa Language to be used in assessing Hausa speaking surgical patients' preoperative anxiety before undergoing elective surgery. Methods: Forward and backward translation method was adopted to translate APAIS into Hausa Language so as to produce a Hausa version of the scale (APAIS-H). The Hausa version was tested on thirty patients scheduled for elective surgery at Federal Medical Centre, Nguru-Yobe State, Nigeria. The authors performed factor analysis, internal consistency and correlated the translated Hausa version with Spielberger's State Trait Anxiety Inventory (STAI-State). Findings: The translated Hausa version of the scale produced high internal consistency for the two subscales (Cronbach's alpha 0.82 for anxiety

related to surgery subscale and 0.71 for information desire subscale respectively). APAIS-H correlated well with Spielberger's state Trait Anxiety Inventory STAI-state with a correlation coefficient of (r = 0.81), Conclusion: APAIS-H has been found to be valid and reliable instrument to be used in the assessment of preoperative anxiety in Hausa speaking patients scheduled to undergo surgical operation.

Keywords

Anxiety, Preoperative, Translation, Amsterdam Preoperative Anxiety and Information Scale (APAIS), Surgical, and Cultural Validation

1. Introduction

Patients undergoing surgical operations are affected by a considerable degree of anxiety known as preoperative anxiety. Preoperative anxiety is an incapacitating state of uneasiness, tension, apprehension, dread and nervousness disproportionate to the threat of surgery being confronted (Ali et al., 2014; Pritchard, 2009).

Numerous studies have reported different causes of preoperative anxiety. Negative expectations of what may happen intra-operatively or postoperatively, and the fear of pain, body mutilation, loss of control and freedom, are documented as some causes of preoperative anxiety (Aziato & Adejumo, 2014; Bailey, 2010). Other causes of preoperative anxiety include past experience of anaesthesia and surgery, waiting for the operation, expectation of postoperative pain and of post-operative complications and incapacitations (Perks, Chakravarti, & Manninen, 2009; Wakim, Smith, & Guinn, 2010).

Considering preoperative anxiety to be serious problems affecting surgical patients, it is mostly the case that health care providers try to reduce it otherwise the anxious surgical patients would not be comfortable with being operated on. In clinical practice, different assessment tools have been used to measure the patients' preoperative anxiety before any intervention is planned. A major limitation of some of these tools is that they are designed in English Language and therefore not suitable for use with non-English speaking surgical patients. In many countries, the tools have been translated into their native languages in order to effectively assess their surgical patients' anxiety (Maurice-Szamburski, Loundou, Capdevila, Bruder, & Auquier, 2013; Mohd, Lai, & Loh, 2015; Vergara-Romero et al., 2017). In this study, we undertake the translation of the Amsterdam Preoperative Anxiety and Information Scale (APAIS) into Hausa Language.

2. Literature Review

Preoperative anxiety is known emotional problem to affecting many patients awaiting surgical operation. Studies have confirmed that, preoperative anxiety increase the experience of postoperative pain (Matthias & Samarasekera, 2012), disturb the functions of the immune system (Bailey, 2010; Khorshidi, Lavaee, Ghapanchi, Golkari, & Kholousi, 2017), cause delays in surgical wound healing and causes variabilities in patients' vital signs (Ali et al., 2014; Bailey, 2010; Gouin & Kiecolt-Glaser, 2011). The overall effects of these could lead to the postponement of the surgery (De Oliveira et al., 2014), post-surgical complications (Rosiek, Kornatowski, Rosiek-Kryszewska, Leksowski, & Leksowski, 2016), prolonged hospital stays (G. Chakir, 2017; Miguel & Sagardoy, 2013), and consumption of higher doses of analgesics postoperatively (Gorkem, Togrul, Sahiner, Yazla, & Gungor, 2016; Walker & Smith, 2009). Therefore, assessment of preoperative anxiety could provide clinicians with detailed information necessary for perioperative care and targeted intervention. Understanding preoperative anxiety will be important for policy and developing preoperative anxiety reduction strategies (Nigussie, Belachew, & Wolancho, 2014).

There are different self-report measures designed to assess preoperative anxiety. However, most of these instruments were developed in English language and therefore not easy to use in cultures and countries where English Language is not a major means of communication. Questionnaires like State Trait Anxiety Inventory (Spielberger, 1983), the Yale Preoperative Anxiety Scale (Kain et al., 1995), the Visual Analogue Scale (VAS), have all been used to assess preoperative anxiety (Romanik, Kański, Soluch, & Szymańska, 2009). These scales are not suitable for use in some parts of the world because of the cultural diversity and language differences in the global community. They are designed and validated in the language mostly spoken in those countries. Researchers and clinicians uses such questionnaires to collect data from patients or research participants in countries different from the where the questionnaires originate (Wild, Diane, Eremenco, Sonya, Mear, Isabelle, Martin, Mona, Houchin, Caroline, Gawlicki, Mary, Von Maltzahn & Robyn, 2009). Thus, very little or no consideration is given to differences in culture and other psychosocial variations between the original language of the questionnaire and the language of the population with which it will be used (Wild et al., 2009). Information collected with a questionnaire on participants who could not well understand the language of the questionnaire can affect the quality of data and consequently producing weak results. Patients who respond to questionnaires developed in language they do not understand are likely to

give inappropriate response. Such results can affect both the participants and other patients with the same kinds of illness by way of misdiagnosis or unsuitable treatment plans.

The best option for tackling this problem is to develop and validate indigenous questionnaires. However, this requires time, resources and special knowledge of the construct the questionnaire is to be designed to measure (Siniscalco & Auriat, 2005). Given that most constructs studied in health and medical sciences are universal, and that research results obtained from one country and culture can be applied to diverse populations and cultures, researchers resorted to adapting and translating existing validated instruments (Rahman, Iqbal, Waheed, & Hussain, 2003; Sousa & Rojjanasrirat, 2011). This helps in producing a culture specific tool for use in clinical practice and cross-cultural studies. However, this requires some special linguistic skills to ensure that the translated version retains its equivalence in content and meaning so that it can be used in the same manner and for the same purpose as the original source-language version (Borsa, Damásio, & Bandeira, 2012; Hambleton, Hambleton, Merenda, & Spielberger, 2005). The main objectives of this were:

- To translate and culturally validate the APAIS into Hausa Language.
- To find out surgical patients' understanding of the translated Hausa version of instrument

3. Problem and Rationale for translating the Amsterdam Preoperative Anxiety and Information Scale into Hausa Language

Hausa is a widely spoken language in West African sub-region. It has more than fifty million native speakers and over fifteen million non-native speakers spread in Nigeria, Niger Republic, Northern Cameroon and Ghana (Oyeyemi, Adewale L, Oyeyemi, Adetoyeje Y, Adegoke, Babatunde O, Oyetoke, Fatima O, Aliyu, Habeeb N, Aliyu, Salamatu U, & Rufai, & Adamu A., 2011). In all these countries, about 70% of the Hausa speaking population have not gone through formal education, which is delivered either in English or French languages. Such population therefore will find it difficult to appropriately understand and respond to a health instrument developed in any language other than Hausa. One of the reason for adapting questionnaire is to have it available in a language in which it did not previously exist (Harkness, Pennell, & Schoua-Glusberg, 2011). Amsterdam Preoperative Anxiety and Information Scale (APAIS) is therefore translated to have a Hausa-language version available for use by clinicians to assess preoperative anxiety in Hausa speaking surgical patients who would not understand the English language version

4. Theoretical basis for the translation

This translation research is based on the model for translation of health instrument (Brislin, 1970). This model posits that, a multi-lingual person translates the instrument from its original language into the target language (forward translation-Hausa Language in the case of this study). Then another multilingual translator back translates the instrument from the target language to its original language (backward translation). To guarantee the sameness of the translated version, the back translation is carried out by blinding the second translator to the original instrument. The two versions (the original and the back-translated versions) are then compared for accuracy. Difficult items are identified and again blindly translated back into the source language by a different bilingual translator. This process is repeated until the translated instrument mutually is unambiguous and equivalent with the original version.

5. Methodology

5.1 Materials and Methods

5.1.1 The Source-Language Questionnaire

The Amsterdam Preoperative Anxiety and Information Scale (APAIS) was developed by Nelly (Moerman, van Dam, Muller, & Oosting, 1996) for the assessment of anxiety in preoperative patients. The questionnaire was developed based on the understanding that, what has been used as the gold-standard for measuring preoperative anxiety, State Trait Anxiety Inventory (STAI) is too long to be used on patients facing surgical operation. More so, given the present-day practice of elective surgery, which gives little time for consultation between surgical patients and the members of the preoperative assessment team, ascertaining surgical patients' level of preoperative anxiety will be difficult. The APAIS was therefore developed to be used even in busy outpatient clinics to screen preoperative patients and differentiate anxious ones from the non-anxious ones (Moerman, Nelly, van Dam, Frits SAM, Muller, Martin J, & Oosting, Hans.). The instrument consists of six items designed to gather information about fear of surgery, fear of anaesthesia and the need for information. Items 1, 2, 4 and 5 gather information on fear of surgery while items 3 and 6 collect information on the patient's desire for information. Scoring of the questionnaire is done on a 1-to-5-point Likert scale, ranging from 1 (Not at all) to 5 (Extremely). The four anxiety items consist of two sub-scales – that is, the anxiety related to anaesthesia sub-scale (Sum A), which is obtained by adding the patient's scores on items 1 and 2, and the anxiety related to surgery sub-scale (Sum S), obtained by adding scores on items 4 and 5. The third component

measures the patient's desire for information (IDC). This component is obtained by adding the patient's scores for items 3 and 6. Overall, each participant's cumulative anxiety score (Sum C) is obtained by adding the scores of Sum A + Sum S (Moerman et al., 1996). . The anxiety subscale has a Cronbach's $\alpha = 0.82$, and $\alpha = 0.72$ for the information desire subscale. A high correlation was obtained between APAIS and STAI-S. Since its development , APAIS has been translated into various languages for use in research and clinical practice (Berth, Petrowski, & Balck, 2007; Kunthonluxamee, Pitimana-aree, & Laurujisawat, 2013; Maurice-Szamburski et al., 2015; Nikandish et al., 2007; Nishimori et al., 2002).

5.2 The process of translation

Borsa et al. (2012) suggested five stages of instrument adaptation and translation: (1) Forward translation from the source language into the target language, (2) synthesis of the translated versions, (3) analysis of the synthesised version by expert judges, (4) back translation, and (5) a pilot study. Accordingly, these stages have been used in this research.

5.2.1 Recruitment of forward translators

It has been suggested that professionally trained translators with experience in medical language translation should be recruited to carry out the translation of health questionnaires. However, it is difficult to have these kinds of professionals readily available at all times and in particular where the study was carried out. Alternatively, Squires suggested that translators should at least possess a bachelor's degree and some years of experience in translation work (Squires et al., 2013). Against this background, two independent professional translators (Forward Translator 1 [FWT1] and Forward Translator2 [FWT2]) with the above level of qualification and experience were recruited to carry out the forward translation of the APAIS from the English-language original to the Hausa language. FWT1 (Mr S.I.) is a native speaker of the Hausa language and currently works with an international radio station in the Hausa services division. He has been involved in translating many English texts into the Hausa language for more than 25 years. FWT2 (Mr M.D.) is also a native speaker of the Hausa language and a senior lecturer in a university English language department. He has been teaching both Hausa and English for over 15 years.

5.3 Forward translation

When adapting a questionnaire to be translated into another language, attention must be paid to its translatability from the source language into the target language – the language that the intended users of the new version speak. This requires special care to ensure that the new translated version is suitable for use in the new culture and remain equivalent to the original source-language version

For a good forward translation of a questionnaire, the literature suggests the recruitment of two independent, bilingual translators to translate the questionnaire items, the instructions and the response format into the target language (Gudmundsson, 2009; Mapi Research Institute, 2002; Muniz, Elosua, & Hambleton, 2012). Although, previously, a single forward translator was thought to be sufficient for the forward translation, having at least two bilingual translators is recommended to reduce the danger of biases in terms of linguistic, theoretical and practical understanding (Cassepp-Borges, Balbinotti, & Teodoro, 2010). Borsa et al. (2012) warned that translators should be fully proficient in both languages and familiar with the cultures associated with the respective languages of each group. Similarly, D. Beaton, Bombardier, Guillemin, and Ferraz (2002) argued that questionnaire translators must speak fluently and write the source language of the questionnaire and should also be native speakers of the target language. Muniz et al. (2012) recommended that translators should possess excellent writing skills as well as a good understanding of the construct and the subject matter the instrument is designed to assess. These qualities make the translation process more comprehensive by enabling the differences with the language for which the instrument is intended to be considered.

3.3.1 Procedure for Forward Translation

The two independent translators separately conducted forward translation and produced two forward-translated versions of the questionnaire. They translated the items, the instructions and the response choices of the questionnaire into the Hausa language. The aim was to achieve semantic and conceptual equivalence of the instrument rather than a direct word-for-word translation. The translators were therefore instructed to pay attention to the following guidelines in this process:

- Avoid literal translation: that is, they should consider the meaning of the original item so as to translate it in the most appropriate way.
- Be clear and to the point: the lower the number of words, the better the translation. Long sentences containing several clauses should not be used.
- Use simple and acceptable language for the target participants. Bear in mind the typical respondent of the instruments; bear in mind levels of education of the potential respondents and also consider the language commonly used in everyday conversation.
- Avoid the use of jargon, colloquialisms and idioms.
- Take note of gender and age: avoid the use of terms that might be considered unpleasant to the target population.

5.3.2 Reconciliation and synthesis of the forward translations

After the forward translations, the researchers and the two forward translators met to discuss and reconcile the two separate forward translations. The aim of the meeting was to agree and produce a combined reconciled version (Version 1) that is conceptually equivalent to the original source-language version, produced in simple and easy-to-understand Hausa. At this meeting, the first reconciled Hausa version of the APAIS – APAIS-H – was produced, as was a report in English documenting all the processes of the forward translation.

Table 1: *APAIS English language version and the translated Hausa version (APAIS-H)*

English Language Version	Translated Hausa Version
I am worried about the anaesthetic	*Na damu da amaganin kashe ciwon da za a yi min*
The anaesthetic is on my mind continually	*Ina tunanin maganin kashe ciwon da za a yi min*
I would like to know as much as possible about the anaesthetic	*Ina son sanin duk iya abin da zan iya sani game da maganin kashe ciwon*
I am worried about the procedure	*Na damu game da aikin tiyatar da za a yi min'*
The procedure is on my mind continually	*Ko yaushe ina tunanin aikin tiyatar da za a yi min*
I would like to know as much as possible about the procedure	*Ina son sanin komai game da aikin tiyatar da za a yi min*

5.3.2.1 Item 1: I am worried about the anaesthetic

Item 1 is concerned with the patient's fear of anaesthesia. The word 'anaesthetic' has no direct equivalent in the Hausa language. As a result of this, the two translators translated the item entirely differently. When the two translations were compared, translator 1's translation was accepted as semantically equivalent with the original source-language version, except for the translation of the word 'anaesthetic', for which he used the phrase '*allurar barcin'*, literally meaning 'sleeping injection'. Translator 2 used many words to translate the item. The words '*fargaba'*, *'yanayin'* and *'magagin'* are words that are not commonly used and are therefore not suitable for use in translating this item. It was agreed to use the phrase '*maganin kashe ciwon'* as the appropriate translation of the word anaesthetic. Finally, it was agreed that the item should be translated as '*Na damu da amaganin kashe ciwon da za a yi min'*.

5.3.2.2 Item 2: The anaesthetic is on my mind continually

Item 2 also measure the fear of anaesthesia. Both translators used the same phrases *'Ko da yaushe'* to *mean* 'continually'. Just as in the translation of item 1, translator 1 used the phrase **'***allurar barcin'* to mean 'anaesthetic' and also added the phrase '*da za a yi min'*, to translate the item. Putting them together, translator 1 translated the item as '*ko da yaushe ina tunanin allurar barcin da za a yi min'*. Translator 2 used many words to translate the item. The item was translated as *'ko da yaushe ina tararradin magagin da za a sakani kafin aikin'*. It has been resolved that, besides the issue of the high number of words used in the translation of the item, the words *'taraddadi'* and *'magagi'* are not words considered to be frequently used in daily conversation and they would therefore make it difficult for participants to understand the item. Finally, it has been resolved that item 2 should read *'ko yaushe ina tunanin maganin kashe ciwon da za a yi min'.*

5.3.2.3 Item 3: I would like to know as much as possible about the anaesthetic

Item 3 was designed to measure patients' desire for information about anaesthesia. The translation of this item was straightforward. Both translators used the same words, *'ina son sanin duk iya abin da zan sani game da…'.* However, the word 'anaesthetic' was translated differently by the two translators: translator 1 used the phrase *'allurar barcin'* and translator 2 used several words *('magagin da za a sakani a ciki')*. Both were considered inappropriate and therefore discarded. Thus, as in the translation of item 1, the phrase *'maganin kashe ciwon'*, which was considered more appropriate was taken as the best translation of 'anaesthetic'. Hence, the item was to be translated as *'ina son sanin duk iya abin da zan iya sani game da maganin kashe ciwon'.*

5.3.2.4 Item 4: I am worried about the procedure

This item measures anxiety related to surgery. The two translators translated the item differently. Translator 1 translated it as *'nadamu game da yadda ake allurar barcin'.* Literally, this means 'I am worried about how the anaesthesia is done'. Translator 2 translated the item as *'ina zullumin aikin fidar da za ayi min'.* Literally, this translation means 'I am confused/thinking of/in dilemma about the skinning that will be done to me'. The phrase *'aikin fidar'* in Hausa means *'skinning'* – that is, the technique of removing the skin of a slaughtered animal. Even though it is used sometimes to mean surgery in Hausa, it was considered inappropriate because it might scare the respondents. The alternative word agreed on to describe the word procedure is *'tiyatar',* a word borrowed by the Hausa language from the English word 'theatre'. The resolution reached was that item 4 should read *'na damu game da aikin tiyatar da za a yi min'.*

5.3.2.5 Item 5: The procedure is continually on my mind

This item also measures anxiety related to surgery. There is a notable difference in the translation of this item by the two translators. Neither of them captured the semantic meaning of the item. The discrepancies identified are the use of the phrases *'tararradin aikin fidar da za a yi min'* (translator 1) and *'allurar barcin'* (translator 2). It was agreed that the item would be translated as *'ko yaushe ina tunanin aikin tiyatar da za a yi min'.*

5.3.2.6 Item 6: I would like to know as much as possible about the procedure

Item 6 measures desire for information about surgery. The wording is the same as in item 3, which measures patients' desire for information about anaesthesia, except that it refers to the procedure and not the anaesthesia. Thus, it has been agreed to adopt the translation for item 3 and to replace the words *'maganin kashe ciwon'* (anaesthesia) with the phrase *'aikin tiyatar'* (procedure) so that the item reads *'ina son sanin duk iya abin da zan iya sani game da aikin tiyatar a za a yi min'.*

5.4 Translation of the instructions and response options

The instructions and response options of the questionnaire were also forward-translated into Hausa. As with the items, the translators used the words or phrases that best translated the instructions and the response options of the instrument into Hausa so that the meaning remained the same as in the original questionnaire.

6. Backward Translation

The essence of the backward translation is to provide a quality-control step demonstrating that the quality of the translation is such that the same meaning can be derived when the translation is moved back into the source language. Backward translation therefore entails the translation of the questionnaire back into its source language. Backward translation is the translation of a translation back into the source language (Harkness et al., 2011). Backward translation has been recommended in cross-cultural adaptation of health research instruments (Bullinger et al., 1998). The aim is to make a comparison with the original source-language questionnaire and to demonstrate that the translation has not changed the conceptual meaning of the original source-language questionnaire (Borsa et al., 2012; Dorer, 2010). However, some authors have shown that back translation tends to focus more on word-for-word translation of the instrument, and not on conceptual equivalence with the original source-language questionnaire (Dorer, 2010; Gudmundsson, 2009). According to guidelines for language translation and cross-cultural adaptation (Gorecki et al., 2014),

backward translators should be not only native speakers of the source language but also proficient in the target language and they should also live in the target country. It is significant that translators understand the culture of the target population for whom the translation is made but should not have prior knowledge of the translated questionnaire. Against this background, a single backward translator was recruited to undertake backward translation of the first reconciled forward-translated version of the APAIS-H to the source language. In keeping with these guidelines, the back translator did not have access to the original source-language questionnaire and was not aware of the purpose for which the translation was conducted.

7. Expert panel review of the translated Hausa version (APAIS-H)

After successful forward and backward translations, evaluation of the quality of translation of the instrument was recommended (Mapi Research Institute, 2002). A quality evaluation review is a procedure for ascertaining the conceptual and linguistic equivalence of the translated instrument. To undertake this, a panel consisting of seven members – 2 surgeons, 2 anaesthetists, a surgical nurses and a language expert to act as an independent judge – was formed. Both of them are native speakers of the target language who understand the source language, speak it fluently and write very well in it. Each member of the panel (except the researcher) was given a copy of the translated questionnaire to read, given that the questionnaire is very short and takes only 3–5 minutes to complete. They were instructed to pay attention to the clarity, comprehensiveness and acceptability of the instructions, response format and items and to report any difficulties or problems observed in the translated questionnaire. Clarity in this context is concerned with general understanding of the questionnaire; comprehensiveness relates to whether the words and phrases used in the items, and in the instructions and the response options, are known to all; and acceptability is about ethical and moral considerations – that is, are the items too sensitive, and do they affect the respondents' privacy? After reading the translated questionnaire, the 6 panel members were also given the original source-language version to compare with the translated version. This was followed by a discussion where each member of the panel explained any problems with the translation identified.

There was general agreement among members of the panel that the translation of the instructions and the response format of the questionnaire was equivalent to the original source-language version. However, 2 of the 6 panel members – interestingly, both

anaesthetists – raised some issues about certain words used in the translation of the items of the questionnaire. Their concerns related to the phrase '*maganin kashe ciwon'*, used in the translation of the word 'anaesthetic', which they argued was not really equivalent to the English word 'anaesthetic'. They argued that '*maganin kashe ciwon'*, which literally means 'the medicine that kills pain', would be a good descriptor for 'pain reliever' or 'analgesics' rather than a good translation of 'anaesthetic'. The panel then deliberated on alternative words or phrases to translate the word 'anaesthetic'. This was not possible as all the words suggested were refused because they do not translate the word anaesthetic. Finally, the phrase *'maganin kashe ciwon'* was adopted by all members of the panel to stand as the translation of anaesthetic. Following the evaluation and review by the expert panel, the final version of the translated questionnaire was produced, ready for pilot testing.

8. Pilot testing

Before any adapted and translated instrument can be considered fit for use in the population for which it was designed, it is necessary to conduct a pilot study. A pilot study is the application of the translated or newly developed instrument in a small group of participants who possess the necessary attributes of the real population for whom the instrument is meant to be used (Gudmundsson, 2009). Pan and De La Puente (2005) stressed that instruments translated into a target language from a source language should be used for data collection only if a proper pilot study of the translated version has been conducted. The research literature is replete with information regarding the pilot testing of translated questionnaires. Harkness et al. (2011) also commented that translated questionnaires should be subjected to thorough testing in the same manner as questionnaires designed for one context, and that the same techniques should be used when testing translated questionnaires as those used in testing monolingual instruments. The aim of pilot testing is to ascertain the correctness of items' conceptual meaning and the ease of administration of the instrument

APAIS-H was pilot tested on patients scheduled to undergo elective surgery at the Federal Medical Centre (FMC), Nguru Yobe State, Nigeria. The ethics committee, (FMC), Nguru, gave approval for the study. After obtaining their written informed consent, APAIS-H was pilot-tested on 30 elective surgical patients, 13 male and 17 female. Their ages ranged from 18 to 75 years (mean age =41, SD=16.). Eight of the thirty participants (26.7%) are single, 19 (63.3%) married and 3 (3.7%) divorced. Fourteen (46.7%) of the participants are unemployed, fifteen (50.0%) employed and the remaining one (3.3%) is retired. Eighteen

participants (60.0%) have no previous history of surgery or anaesthesia while the remaining twelve (40.0%) have had surgical operation before. The participants were all informed that the questionnaire was translated from English to Hausa and that therefore they were required to assess the quality of the translation. Specifically, they were instructed to pay attention to the questionnaire instructions, the response options and all the items. If they could not understand any of these, they were required to indicate this and point out what the difficulty was with the item in question. To assess their level of understanding or lack of understanding, the translated scale was therefore placed on a 4-point Likert scale ranging from '*not understood'* to *'very well understood"*

9. Results

9.1 Item Understanding

Descriptive statistics was used to analyse the results. Summary tables, percentage of the participants' understanding of the translated items and bar graphs were produced using the statistical software SPSS IBM Corp. Released 2013 IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp; to present the participants scores for item understanding.

Table 2: *A general summary of the participants' raw scores for item understanding for both fears of surgery and information desire subscales of the translated Hausa version of APAIS*

	Anxiety related to surgery sub-scale				Information desire sub-scale	
Level of understanding	**Item 1 N (%)**	**Item 2 N (%)**	**Item 4 N (%)**	**Item 5 N (%)**	**Item 3 N (%)**	**Item 6 N (%)**
Not understood	2 (6.70)	2 (6.70)	1 (3.30)	0 (0.00)	4 (13.30)	1 (3.30)
Somewhat understood	5 (16.70)	5 (16.70)	5 (16.70)	2 (6.70)	4 (13.30)	4 (13.30)
Understood	18 (60)	14 (46.70)	11 (36.70)	19 (63.30)	12 (40.00)	16 (53.30)
Very well understood	5 (16.70)	9 (30.00)	13 (43.30)	9 (30.00)	10 (33.30)	9 (30.00)

9.2 The anxiety related to surgery sub-scale

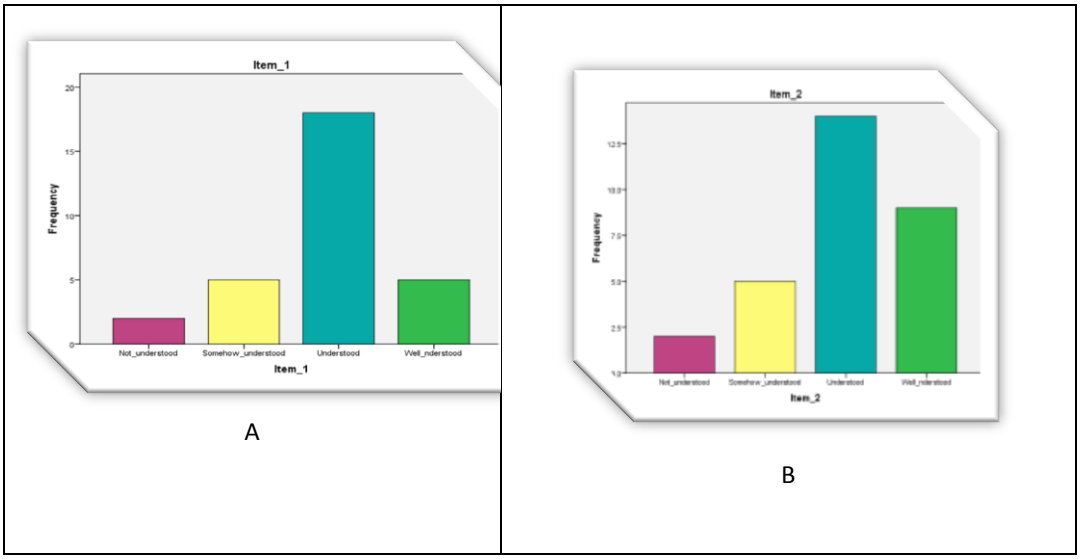
From the table above, it can be seen that, for item 1, two participants 2 (6.7%) did not understand the item, 5 participants (16%) somewhat understood the item; 18 (60%) understood it while only 2 (6.7%) understood the item very well. For item number 2, only 2 participants (6.7%) scored as not understanding the item, 5 participants (16.7%) understood it somewhat, 14 participants (46.7%) understood it and 9 (30%) reported that they understood the item very well. With item 4, only 1 participant (3.3%) reported not understanding the item, 5 participants (16.7) understood it somewhat, and 11 participants (36.7%) understood

itand 13 participants (43.30%) reported that they understood the item very well. Finally, for item 5 on the anxiety sub-scale, none of the participants stated that they did not understand the item at all or that they did not understand it. Only two participants (6.7%) scored that they somewhat understood the item, while 19 (63%) and 9 (30%) respectively reported that they understood the item or that they understood it very well.

9.3 Information desire sub-scale

On the APAIS, patients' desire for information is measured by items 3 and 6. Participants' scores for this sub-scale indicate that, for item 3, four participants (13.30%) did not understand the content of the item at all. Another 4 (13.3%) participants somewhat understood the item. On the other hand, 12 of the participants (40%) reported that they understood the item while 10 of the participants (33.3%) reported that they understood the item very well. For item 6, only 1 participant (1, 3.3%) reported not understanding the item, 4 participants (13.3%) somewhat understood it, 16 (53.3%) understood it and 9 (30%) understood the item very well.

The following bar graphs (A, B, C, D, E and F) shows the participants item understanding as presented on the summary table above and in accordance with the two subscales of the translated Hausa version of the instrument, APAIS-H.



A

B

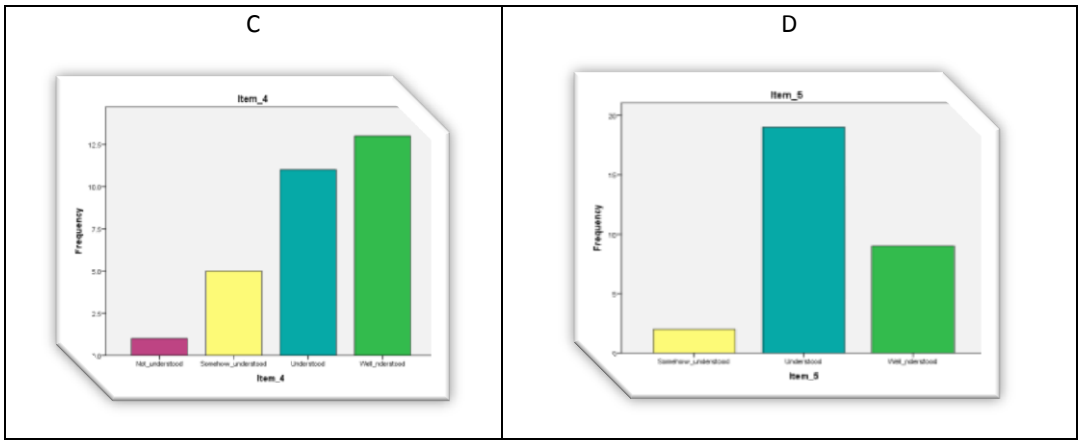


Figure 1: *Bar graphs for items 1, 2, 4 & 5 of the anxiety related to surgery subscale*

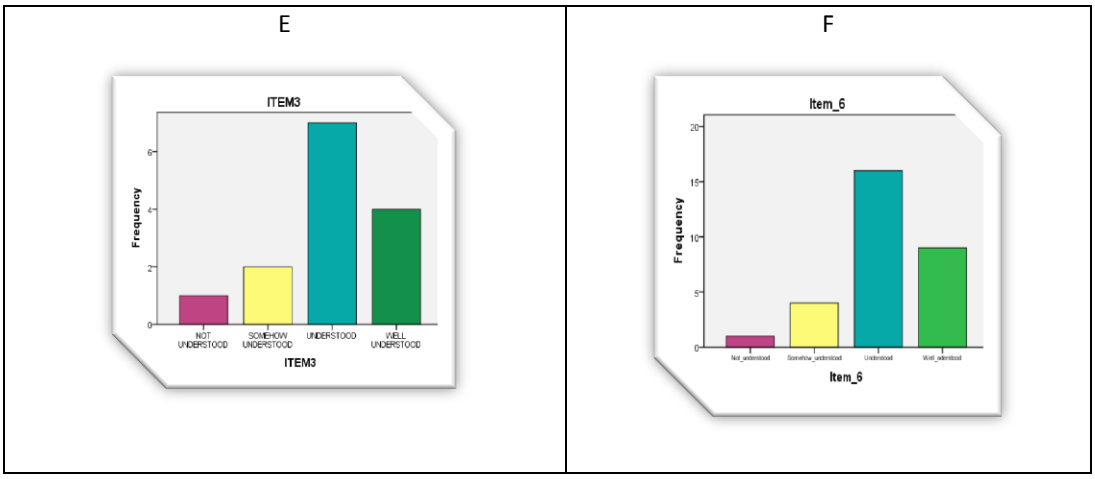


Figure 2: *Bar graphs for items 3 and 6 on the information desire subscale*

9.4 Psychometric Testing

The participants' scores on the translated Hausa version of the scale were used for psychometric evaluation to determine the reliability index of the scale. We performed principal component analysis (PCA) to explore the underlined constructs of *APAIS-H.* As with the original questionnaire, a three factor structure emerged- anxiety related to anaesthesia, anxiety related to surgery and patients desire for information- each factor having two items. Item-total statistics for anxiety related to anaesthesia sub-scale shows a Cronbach alpha of 0.812 and 0.822 respectively, while alpha values of 0.802 and 0.789 were revealed for the anxiety related to surgery sub-scale. For the information desire sub-scale, the item-total statistics produced a Cronbach's alpha of 0.762 and 0.801 respectively.

Table 3: *Presents Summary of the Item-Total Statistics for Anxiety Related To Surgery Subscale That Emerged After Performing Principal Component Analysis*

ITEMS	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ITEM1	12.52	2.473	.634	.794	.812
ITEM2	12.38	2.530	.483	.713	.822
ITEM4	12.17	2.291	.648	.667	.802
ITEM5	12.17	4.291	-.006	.738	.789
ITEM 3	10.10	2.33	.452	.623	.762
ITEM6	11.20	3.11	.441	.723	.801

Factor Analysis (CFA) of the translated scale also produced a CFA index of 1.00. Overall, high internal consistency reliability was found on the APAIS-H. Cronbach's alpha (α) of the factors of the translated Hausa version of the scale ranges from 0.82 anxiety related to surgery sub-scale to 0.71 for information desire sub-scale. Participants were also

administered the state version of the Spielberger's State Trait Anxiety Inventory (STAI-S) for the purpose correlating it with the translated APAIS-H. Spearman's correlation was also performed to see of APAIS-H would correlate with Spielberger's State Trait Anxiety Inventory (state version). A significant correlation was found between the two scales at *P= 0.005* level of significance (see table 4), suggesting that, the translated Hausa version of the scale correlated well with what has been regarded as a gold standard measure of state anxiety.

Table 4: *Presents the Scores of Spearman's Correlation Computed to Determine the Correlation Between the Translated Apais-H And Spielberger's Stai-S*

			APAIS_H	STAIS_S
Spearman's rho	APAIS_H	Correlation Coefficient	1.000	0.810**
		Sig. (2-tailed)	.	0.01
		N	30	30
	STAIS_S	Correlation Coefficient	0.810**	1.000
		Sig. (2-tailed)	0.01	.
		N	30	30

****. Correlation is significant at the 0.01 level (2-tailed).**

7. Discussion

The objectives of this study were to translate and culturally adapt and validate the Hausa Language version of the APAIS scale, and to determine how Hausa surgical patients would understand the translated scale. We used a standard translation method that is in line with theory and guidelines reported in the literature (D. Beaton et al., 2002; D. E. Beaton, Bombardier, Guillemin, & Ferraz, 2000; Brislin, 1970; Bullinger et al., 1998).

Problems were found in the translation of certain key words in the original items of the instrument, resulting in either the two forward translators making completely different or unrelated translations or using many words to translate such items. What was identified as the main reason for this was that, words such as *anaesthesia* have no direct equivalent in Hausa. Equally, the word *procedure* which in the original source questionnaire means surgery/operation was not translated as such by the two translators. Instead, its literal meaning (way of doing things) was considered in the initial translation of the items consisting of the word procedure as the key word. However, these discrepancies were resolved during reconciliation meeting and were further refined during the expert panel review.

Overall, the participants' understanding of the translated scale shows that, >83% of the respondents scored that they either *'understood'* or *'very well understood'* the translated

items. The translated Hausa version (APAIS-H) has produced high reliability coefficient that is similar with the original version. Evaluation of construct validity was done by factor analysis. Factor analysis of the scale, with oblique rotation and Eugene value >1 revealed two factors explaining a total variance of seventy one percent (71%). To determine the reliability and internal consistency of the scale, Cronbach's alpha was calculated. A Cronbach's alpha coefficient of α=0.82 for the anxiety related to surgery subscale and α=*0.71* for the desire for information subscale were obtained from the analysis. Spearman's correlation was calculated to determine how APAIS-H correlated with Spielberger's State Trait Anxiety Inventory. The result shows that, APAIS-H correlated well with Spielberger's state version of the State Trait Anxiety Inventory (STAI-S) with a correlation coefficient of *r=0.810*.

8. Conclusion

The aim of this study was to translate the Amsterdam Preoperative Anxiety and Information Scale into the Hausa language such that, the Hausa version of the scale-APAIS-H will be semantically and conceptually equivalent with the original source language version. Therefore, emphasis was paid to the process of translation and how the translated instrument will be 'understood' by the population for whom it was translated. Aside from the translation and emphasis on understanding of the scale, the present study has shown that the translated Hausa version of the APAIS-H has good psychometric properties similar to the original source language version. Therefore, this short screening and assessment scale can be used in clinical practice and research by clinicians and researchers working with Hausa speaking surgical patients. The advantage of such a short screening and assessment tool is that, it can be used to scale elective surgical patients' preoperative anxiety and to plan intervention within the limited time available to the clinicians, particularly with the present day system of elective surgery which tends to give little or no time for preoperative preparations of patients.

9. Limitations

Although data was collected on preoperative patients, the analysis performed did not look at the relationship between the participants' anxiety and their demographic characteristics such as marital status, education and clinical characteristics such previous surgical history. Also the data was collected on small number of participants. There is need for further validation study with large number of participants. However, the thirty participants used in this study are sufficient to provide statistically significant results. With all these limitations, the good psychometric properties found in the translated APAIS-H, which is

similar to the original source version (Moerman et al., 1996), indicates that the Hausa version would serve the same purpose with the original and therefore would be good tool for clinical practice and relevant for cross-cultural research studies.

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